Broad CIRM Facility at USC

Grant Award Details

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Grant Type: Major Facilities

Grant Number: FA1-00619

Investigator:

Name:	Chrysostomos Nikias
Institution:	University of Southern California
Type:	PI

Award Value: $26,972,500

Status: Closed

Grant Application Details

Application Title: Broad CIRM Facility at USC

Public Abstract:

The CIRM Facility, at the School of Medicine of the Lead Institution, will be the home of the Southern California Stem Cell Scientific Collaboration (SC3), a comprehensive and integrated program of basic, pre-clinical and clinical stem cell research arising from scientific collaboration between six institutions. The scientists of SC3 bring together a diverse set of skills and expertise in stem cell biology, chemistry, engineering, and medicine, and the CIRM Facility will be a focal point that catalyzes interdisciplinary work to accelerate their discoveries towards cures. The Host Institution is committed to the development of a stem cell program, eventually comprising eighteen research teams, that will be housed in the new Facility and will form the core of the research activity. The Facility will also devote a significant amount of space for scientists from other departments at the Lead Institution and other SC3 institutions to train in stem cell research and carry out pilot research projects that will explore promising new ideas. By sharing facilities, reagents, and discoveries, SC3 scientists will make efficient use of state stem cell resources and accelerate the progress of research to the clinic. The stem cell program of the host Institution has already attracted eight new scientists to California from leading laboratories around the world; construction of the new Facility is essential to retaining these new investigators and to attracting more. Research on fundamental stem cell biology is one important area scientists in the new facility will pursue, for there is much still to learn about how embryonic stem cells multiply and specialize to form tissues like the eye and heart, and much to discover about how to tap the potential for adult tissue stem cells to regenerate and repair damaged organs. This fundamental research is then integrated into technological advances that will lead to industrial scale production of cells, to development of new medicines that will help drive tissue regeneration after injury, and to the production of important new research reagents that will be used in laboratories around the world. These technologies will then be applied to the treatment of disease. Scientists in SC3 will be concentrating on four organ systems and diseases affecting them: eye and ear, heart and blood vessels, liver and pancreas, and blood cells and cancer. These focus areas are ones in which SC3 has particular strengths in clinical research, and they also encompass disease states within the reach of regenerative medicine in the mid to long term.

Statement of Benefit to California:	The construction of the new CIRM Facility will bring great scientific, educational, economic, and health benefits to Californians. The Facility will form a hub for collaborative work in stem cell research and regenerative medicine between six institutions, which together form the Southern California Stem Cell Scientific Collaboration (SC3), with unique and complementary scientific expertise. SC3 will thus catalyze synergistic interactions that will accelerate the progress of research towards achieving cures for disease. By sharing facilities, reagents, and expertise, the institutions in SC3 will achieve highly efficient use of state stem cell funding. The host Institution, whose medical school campus will be home to the Facility, is building a new stem cell research focus, and is committed to the recruitment of a group of 18 scientists who will conduct basic and applied stem cell research. In the first year of its existence, this new center has already attracted eight scientists to California from leading laboratories around the world and that effort continues. These scientists will work with colleagues from six institutions in the region to study fundamental biology of stem cells and to apply this knowledge to developing the new technologies that are essential to the production of stem cell based therapies. While ultimately the goal is to develop cellular therapies for disease, there are many spinoffs from stem cell research undertaken in the new facility that will have an impact on human health and the regional, state and national economy. These include development of new processes for expansion of cells, new research reagents, new drugs to stimulate and control tissue regeneration and growth, new monoclonal antibodies for diagnosis and treatment of disease, and new platforms for virology research and vaccine development. This work will integrate with clinical programs in four areas: sensory systems, cardiovascular medicine, liver disease and diabetes, and hematology and oncology. This clinical research will lead to treatments for retinal disorders that lead to blindness, heart disease, liver disease, diabetes and cancer. The new Facility will provide a training center for scientists, technicians, and the academic physicians who will be essential to the future progress in this sector of medicine. Moreover, the location of the new Facility at the Medical School of the Host Institution is of strategic significance, because the hospitals associated with this institution serve the needs of a large patient population with a wide range of socioeconomic, ethnic and racial diversity. This context places SC3 in a special position amongst California institutions to develop and deliver regenerative medicine for underserved segments of the population. Plans to develop a biomedical technology park adjacent to the CIRM Facility will ensure that SC3 becomes a focal point for the growth of stem cell biotechnology in the region.

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